

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-236-3  
Relating to Exemptions Under Section 27156  
of the Vehicle Code

AUTOMOTIVE PERFORMANCE SYSTEMS, INC.  
NEUSPEED CORRADO STAGE II HP KIT

Pursuant to the authority vested in the Air Resources Board by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-5;

IT IS ORDERED AND RESOLVED: That the installation of the Neuspeed Corrado Stage II HP Kit manufactured by Automotive Performance Systems, Inc. of 1464 N. Hundley St., Anaheim, CA 92806, has been found not to reduce the effectiveness of the applicable vehicle pollution control system and, therefore, is exempt from the prohibitions of Section 27156 of the Vehicle Code for 1990 to 1992 Volkswagen Corrados powered by a 1.8 liter 8 valve supercharged gasoline engine.

This Executive Order is valid provided that installation instructions for this Shorty Header will not recommend tuning the vehicle to specifications different from those submitted by Automotive Performance Systems, Inc.

Changes made to the design or operating conditions of the kit, as exempt by the Air Resources Board, which adversely affect the performance of a vehicle's pollution control system shall invalidate this Executive Order.

Marketing of this kit using any identification other than that shown in this Executive Order or marketing of this kit for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board. Exemption of the kit shall not be construed as exemption to sell, offer for sale, or advertise any component of the kit as an individual device.

This Executive Order does not constitute any opinion as to the effect the use of this kit may have on any warranty either expressed or implied by the vehicle manufacturer.

THIS EXECUTIVE ORDER DOES NOT CONSTITUTE A CERTIFICATION, ACCREDITATION, APPROVAL, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF AUTOMOTIVE PERFORMANCE SYSTEMS' NEUSPEED CORRADO STAGE II HP KIT.

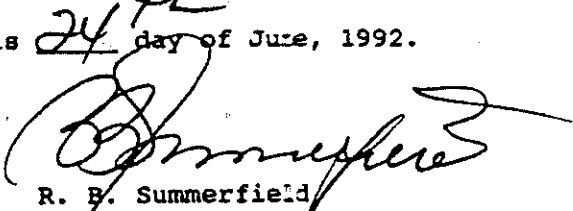
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No claim of any kind, such as "Approved by the Air Resources Board" may be made with respect to the action taken herein in any advertising or other oral or written communication.

Violation of any of the above conditions shall be grounds for revocation of this order. The order may be revoked only after ten day written notice of intention to revoke the order, in which period the holder of the order may request in writing a hearing to contest the proposed revocation. If a hearing is requested, it shall be held within ten days of receipt of the request and the order may not be revoked until a determination after hearing that grounds for revocation exist.

Executed at El Monte, California, this 24<sup>th</sup> day of June, 1992.



R. B. Summerfield  
Assistant Division Chief  
Mobile Source Division

State of California  
AIR RESOURCES BOARD

EVALUATION OF AUTOMOTIVE PERFORMANCE SYSTEMS, INC.  
NEUSPEED CORRADO STAGE II HP KIT FOR EXEMPTION FROM THE PROHIBITIONS OF  
VEHICLE CODE SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF  
THE CALIFORNIA CODE OF REGULATIONS

June 1992

State of California  
AIR RESOURCES BOARD

EVALUATION OF AUTOMOTIVE PERFORMANCE SYSTEMS, INC.  
NEUSPEED CORRADO STAGE II HP KIT FOR EXEMPTION FROM THE PROHIBITIONS OF  
VEHICLE CODE SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF  
THE CALIFORNIA CODE OF REGULATIONS

by

Mobile Source Division  
State of California  
Air Resources Board  
9528 Telstar Avenue  
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(This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.)

### SUMMARY

Automotive Performance Systems, Inc. (Automotive Performance Systems) has applied for an exemption from the prohibitions of Vehicle Code Section 27156 for their Neuspeed Corrado Stage II HP Kit for installation on 1990-92 supercharged Volkswagen Corrados with a 1.8 liter 8 valve gasoline engine. Automotive Performance Systems has submitted a completed application and all the required information, as well as exhaust emissions test data performed at Milton Roy Company which has demonstrated that the Neuspeed Corrado Stage II HP Kit does not have any adverse effect on the exhaust emissions of the affected vehicles.

Based on the submitted information and the results of the emissions test performed at Milton Roy Company, the staff concludes that the installation of Automotive Performance Systems' Neuspeed Corrado Stage II HP Kit will not adversely affect exhaust emissions on the specified vehicles when tested in accordance with the cold start CVS-75 Federal Test Procedure.

The staff recommends Automotive Performance Systems, Inc. be granted an exemption as requested and that Executive Order D-236-3 be issued.

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EVALUATION OF AUTOMOTIVE PERFORMANCE SYSTEMS, INC. NEUSPEED CORRADO STAGE II  
HP KIT FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156 IN  
ACCORDANCE WITH SECTION 2222, TITLE 13, OF THE CALIFORNIA CODE OF  
REGULATIONS

I. INTRODUCTION

Automotive Performance Systems, Inc. (Automotive Performance Systems) of 1464 N. Hundley St., Anaheim, CA 92806, has applied for an exemption from the prohibitions of Vehicle Code Section 27156 for their Neuspeed Corrado Stage II HP Kit (HP kit) for installation on 1990-92 supercharged Volkswagen Corrados with a 1.8 liter 8 valve gasoline engine. Automotive Performance Systems has submitted a completed application and all the required information, as well as exhaust emissions test data performed at Milton Roy Company on a 1990 1.8 liter 8 valve Volkswagen Corrado.

II. CONCLUSIONS

Based on the submitted information and the results from exhaust emissions test performed at Milton Roy Company, the staff concludes that Automotive Performance Systems' Neuspeed Corrado Stage II HP kit will not adversely affect exhaust emissions from the specified vehicles when tested in accordance with the cold start CVS-75 Federal Test Procedure (FTP).

III. RECOMMENDATION

The staff recommends that Automotive Performance Systems, Inc. be granted an exemption as requested and that Executive Order D-236-3 be issued.

IV. NEUSPEED CORRADO STAGE II HP KIT DESCRIPTION

The Neuspeed Corrado Stage II HP Kit (HP kit) is specifically designed for installation on 1990-92 supercharged Volkswagen Corrados with a 1.8 liter 8 valve gasoline engine. The kit operates in conjunction with the

original equipment manufacturer's (OEM) computer controlled electronic fuel injection and emission control systems already certified with the stock engine. The HP kit is designed to enhance the performance of the supercharged Corrado by modifying the supercharger boost characteristics and exhaust flow.

The HP kit is comprised of five components: supercharger pulley, pressure switch, exhaust muffler, 180 degree thermostat, and 180 degree fan switch. The modified pulley that replaces the stock pulley is reduced by 12 millimeters in diameter, OEM is 80 millimeters while Neuspeed's is 68 millimeters. The smaller pulley increases the impeller-to-crankshaft ratio of the OEM supercharger which results in a 5.5 lbs. increase (OEM at 9 lbs. and HP kit at 14.5 lbs.) in maximum boost. The addition of a pressure switch allows the ECU to extend the boost limits and provide the proper fuel when operating in a high boost mode. The switch works in conjunction with the electronic control unit (ECU), throttle position sensor (TPS) switch, stabilizer valve, and boost sensing line to control the boost and fuel parameters. The exhaust muffler replaces the stock mid-section muffler located after the catalyst and prior to the stock rear tailpipe/muffler. The stock thermostat and fan switch of 195 degrees is replaced with a 180 degree thermostat and fan switch.

#### V. DISCUSSION OF THE NEUSPEED CORRADO STAGE II HP KIT

Automotive Performance Systems, Inc. submitted emission testing conducted at Milton Roy Company. A 1990 supercharged Volkswagen Corrado powered by a 1.8 liter 8 valve engine was used as the test vehicle for the HP kit. The dynamometer inertia weight and loading used during the testing were 3000 lbs. and 5.6 hp, respectively.

The emission tests consisted of one cold-start CVS-75 Federal Test Procedure in the modified configuration. The test results are shown in Table 1.

Table 1

CVS-75 TEST RESULTS

(Milton Roy Company)

| Test                       | Exhaust emission (gm/mi) |           |            |
|----------------------------|--------------------------|-----------|------------|
| <u>Mode</u>                | <u>HC</u>                | <u>CO</u> | <u>NOx</u> |
| Standard                   | 0.41                     | 7.0       | 0.4        |
| Device                     | 0.32                     | 3.75      | 0.29       |
| Deterioration Factors (DF) | 1.00                     | 1.00      | 1.00       |
| Results with DF            | 0.32                     | 3.75      | 0.29       |

The CVS-75 emission test results at Milton Roy Company indicate the HC, CO and NOx emissions of the 1990 Volkswagen Corrado are below the emission standards.

The Air Resources Board did not conduct confirmatory tests to validate the emission test results submitted by Automotive Performance Systems, Inc.

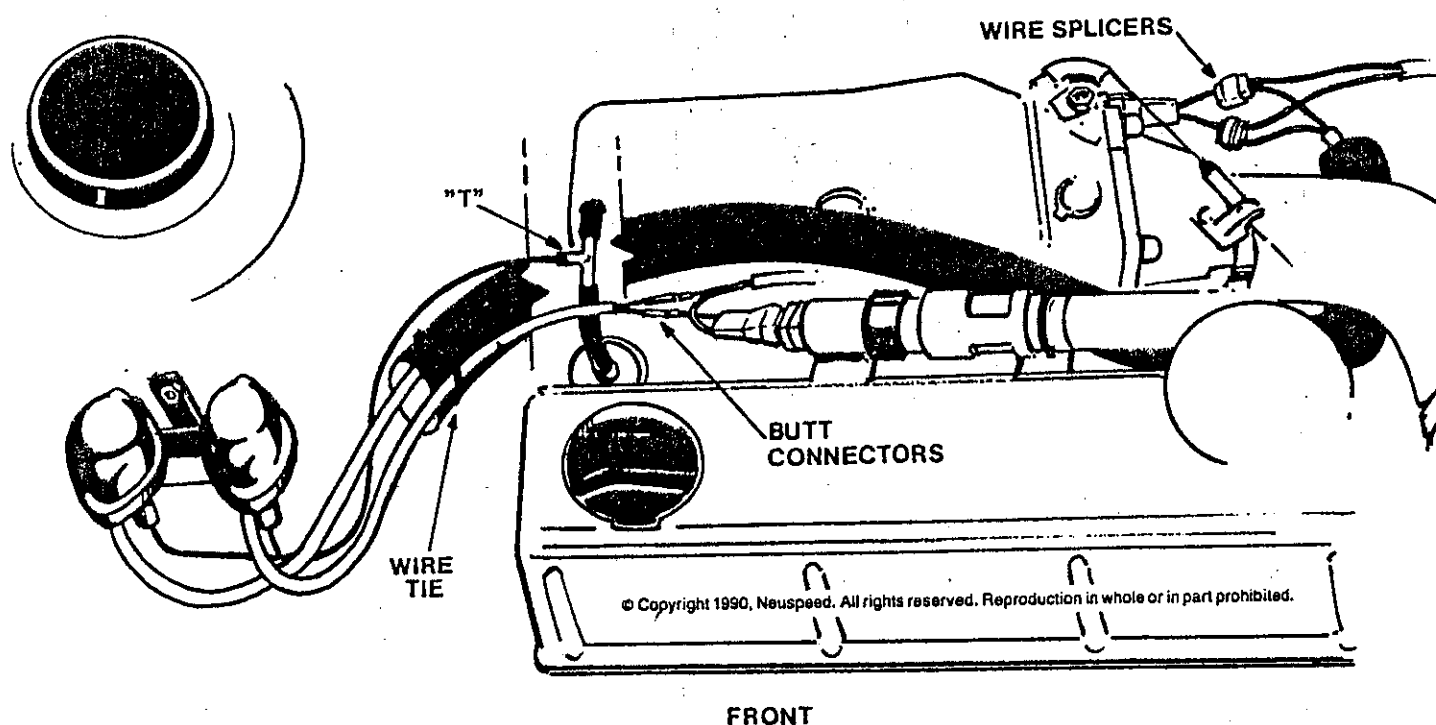
Automotive Performance Systems, Inc. has submitted all the required information and fulfilled the requirements for an exemption. The test results confirmed that Automotive Performance Systems, Inc. Neuspeed Corrado Stage II HP Kit meets the requirements for the exemption.

**APPENDIX**

10. Connect boost sensing line: Run line up to manifold sensing line for the fuel pressure regulator -- located on the front corner, passenger side of the intake manifold. Cut line in the middle, and connect boost sensing lines using 'T' supplied. Wire-tie boost sensing line and wires to the gas vapor hose tubing.

11. While engine is still cold; change water thermostat and fan switch. The water thermostat is located where the lower radiator hose goes into the water pump housing. Remove the five bolts on the aluminum power steering bracket for access. The fan switch is located under battery on lower part of radiator -- driver's side. Remove battery for access.

12. Double-check complete installation. Start engine, and check to see that belt is running in center of all pulleys. **TEST DRIVE CAREFULLY!**



### RECOMMENDATIONS

1. DO NOT run engine at boost until NORMAL operating temperature is reached.
2. Oil and filter change interval: 2000 - 3000 miles maximum.
3. Use premium unleaded fuel only (92+ octane). Under no circumstances should the engine be allowed to detonate or ping! Detonation is a very light rattling sound that can be heard only with the windows up and the radio off. Detonation will only happen under high load or high rpm conditions. NEVER let the engine detonate for longer than it takes to recognize the sound. Simply ease back on the throttle and the detonation will stop. Continued exposure to detonation can destroy pistons, cylinder head, etc. Investigate the cause and correct! The most common are: poor grade of fuel or improper timing.

# NEUSPEED

## NEUSPEED CORRADO STAGE II HP KIT 185HP INSTALLATION INSTRUCTIONS

NOTE: Engine hi-performance parts are sold AS IS without any warranty, and may not be returned. User assumes all costs and risks associated with these items. Vehicles modified by these parts are not legal on public roads. Further, these parts DO NOT comply with Volkswagen factory warranty, and may void same.

Raise vehicle and support with jack stands. NEVER WORK UNDER A VEHICLE SUPPORTED ONLY WITH A JACK!

1. Remove rear tail pipe/muffler -- set aside, and middle section muffler -- discard. You will be replacing middle section of exhaust system only and retaining stock tail pipe/muffler assembly.
2. Discard middle section muffler hanger (LEFT SIDE), and turn the RIGHT SIDE hanger 90° toward driver's side of car.
3. Install new exhaust middle sections supplied, and stock tail pipe/muffler using new clamps and joint sealant supplied. Align pipes properly and tighten clamps.
4. At front edge of middle muffler, bend heat shield up slightly to provide clearance.
5. Remove air cleaner box. Loosen supercharger pulley bolt. Remove top nut on belt tensioner (looks like mini shock with spring), and loosen lower mounting bolt. Push down on belt tensioner and pull off from top mount. Now remove supercharger pulley bolt, and pull off pulley.
6. Install the Neuspeed supercharger pulley -- align with keyway. Put Loctite on bolt and torque to 33 ft. lbs. Now make sure belt is positioned properly on ALL pulleys. Re-install belt tensioner... push down and slide on top mount, being carefull not to damage rubber sleeve. Tighten upper and lower mounting bolts on belt tensioner. Double-check torque on supercharger pulley bolt.
7. Mount the pressure switch assembly on passenger side of strut tower. Remove fuel vapor hose bracket, and move down to lower stud. Mount pressure switch bracket on upper stud with nut supplied.
8. Pressure switch with LONG wire lead -- run wire through the plastic tubing along with gas vapor hoses around to the back side of throttle body. You will find a 3-wire connector attached to the throttle body. Connect one wire to the BLUE with BLACK stripe, and the other wire to the BROWN with WHITE stripe, both using wire splicers supplied.
9. Pressure switch with SHORTER wire lead -- run wire to the idle stabilizer valve -- located on top of the valve cover. Cut the BLACK with YELLOW stripe wire leading to the stabilizer valve. Connect one end to the WHITE pressure switch wire, and the other end to the electrical tape on the wiring harness.